in petri-dish moist chambers at room temperature indicated that four of the conditions commonly cited as favoring perithecium formation, namely, old leaves, a host in a low state of nutrition, a dry atmosphere and low temperature, did not satisfactorily account for the formation of perithecia in this case. Fifteen single conidium cultures were isolated and maintained on excised sunflower leaves on sucrose solution. One of these single spore cultures has been maintained for over four months and all of them for six weeks or more under various cultural conditions without showing any tendency towards perithecium formation. Various combinations of these cultures were made, and perithecia were formed when certain cultures were combined. Two single conidium cultures, 1 and 1A2, which formed perithecia on combining, were studied in more detail. In two out of three tests with excised leaves floating on sucrose solution, and in three out of three tests with excised leaves with their petioles in flasks of mineral nutrient solution, perithecia were formed, though rather sparsely in most tests, when sunflower leaves were inoculated at the same place with both cultures. In one test, all twelve inoculations with culture 1 alone, and all 12 inoculations with culture 1A2 alone, formed conidia only, while seventeen out of twenty inoculations with the two cultures together formed perithecia in addition to conidia. This is considered to be reasonable proof of heterothallism in *Erysiphe cichoracearum* and is believed to be the first record of heterothallism in the *Erysiphaceae*. Cytological studies of the phenomenon are being conducted by Dr. Ruth Allen.

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RARE AQUATIC PHENOMENA

THE early morning of August 1 saw the beginning of an occurrence that, so far as the writer can find out, has never happened in this part of the country before, and is only recorded in a very few places throughout the world during the past fifty years or more.

About 18 miles north of New Haven, Connecticut, between the towns of Wallingford and Meriden, is a small lake known as the "North Farms reservoir." It is not over fifty feet above sea level; the surface area is between 125 and 150 acres, and it receives the drainage from a small basin of not over one square mile in extent. The lake has no inlet; it is spring-fed and very shallow, being only 8 feet deep in the deepest part, with an average mean depth of about 4 feet. The bottom is mostly mud and very full of weeds.

On the morning of August 1 the writer was called on the phone by Mr. S. R. MacDonald, a fruit grower whose property borders on the lake, and was told that "the whole surface of the lake was covered with fish of all kinds and sizes, that were breaking water incessantly, and that many of them were dead and dying." It took only a few minutes to reach the lake, and the sight was one never to be forgotten. Literally every square foot of the surface had one or more fish trying to breathe with their noses out of water. The fish consisted of pickerel, perch, calico bass, bullheads, sunfish and pond shiners.

Shortly after noon the fish were dying by the thousand and sinking to the bottom, while those that had been the first to die, probably during the night before, began to rise to the surface. In the meantime the water began to assume a peculiar milky color that was far from normal.

The shore-line of the lake was thoroughly examined. The vegetation along the shore showed no discoloration, nor any other sign of the action of poison, which every one seemed to suspect was at the bottom of it. In the meantime more and more fish kept coming to the surface and heading for shallow water. In some instances they even swam up on the banks where they were high and dry, and continued flopping around until they died.

Late in the afternoon Dr. Copeland, of the State Board of Water Supply, came down and analyzed the water from samples taken at different depths, all of which showed that practically all the oxygen had been exhausted, barely a trace showing in the analysis. Dr. G. E. Hutchinson, of Yale University, also came up to investigate the phenomena, and the results he obtained coincided with those of Dr. Copeland. A number of fish, both alive and dead, were taken to Professor Charles R. Hoover, of Wesleyan University, who after performing autopsies on the specimens gave as his opinion that the fish had died from a complete lack of oxygen, no trace of copper or other poisonous matter being present.

At the time of the catastrophe the pond had been "working" for several days, while a few days before there had been some severe rains, accompanied by abrupt changes in temperature. It seems that the decaying vegetation washed into the lake by the rains, plus the sudden changes in temperature, caused the sudden decaying of the Algae, which in turn caused a precipitation of decayed vegetable matter that absorbed all the oxygen. This naturally led to the suffocation or drowning of all the fish. It is estimated that over 400,000 fish died, and that not one was left alive. Even the eels and crawfish crawled out on the banks to die.

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